COMPLETED PROJECTS: EXTERNALLY AIDED PROJECTS

Project 1: Productive propagation of remunerative medicinal plants for establishment of silva-ayurveda demonstrative models in the arid and semi arid areas, their preservation for further improvement, research, extension, development and diversification. (AFRI-70/AFE/NMPB/2006-2009)

Findings: Plants of some species like *A. indica* (neem) *Cordia myxa* (gunda)*, Ziziphus jujuba* (ber), *P. cineraria* (khejeri), *T. undulata* (rohida) *Moringa oleifera* (sahjan), *Caraissa carandas* (karoda), *Commiphora wightii* (guggal) were raised at AFRI nursery.Plants of some medicinal plant species like Aloe vera, Brahmi, Ashwagandha etc were procured from outside sources.

Two sites at Tibna and Jadan of Jodhpur and Pali districts respectively were planted & maintained. Fifteen field beneficiaries were selected at Tibna village, two of one hectare and thirteen of one bigha area. Total area planted is 5.75 ha. at village Tibna. The species of *A. indica* (neem) *Cordia myxa* (gunda)*, Ziziphus jujuba* (ber), *P. cineraria* (khejeri), *T. undulata* (rohida) *Moringa oleifera* (sahjan), *Caraissa carandas* (karoda), *Commiphora wightii* (guggal) were maintained at farmers fields.

Some of the farmers have shown their interest to plant Aloe *vera* (guwarpatha), and *Withania somnifera* (ashwagantha). Total area planted is 5.75 ha. at village Tibna. At Jadan, species *T. undulata* (rohida),*P.cineraria* (khejeri), *Cordia myxa* (gunda)*, Ziziphus jujuba*   (ber), *Emblica officinalis* (aonla) *Commiphora wightii* (guggal) and Citrus (nimbu) were maintained over 1.25 ha. The survival percentage in the field ranged 70 % to 90 %.

At AFRI, Jodhpur nursery 4,20,000 nos. of *Aloe vera* plants were transplanted in thirty five nursery beds, which were procured from SKN College, Rajasthan Agriculture University, Jobner. These are being maintained by providing proper shelter and irrigation. Field nursery at Tibna was maintained by providing watch and ward. It contains about 45,000 seedlings.

An experiment on "Production Study of Medicinal Plants Integrated with tree and shrubs in the Indian Desert" was established at experimental fields of AFRI, Jodhpur with two shrub species i.e. Nimbu and Guggal and tree species Gunda and Khejri in Randomized Block Design.

Project 2: Establishment of a network to facilitate collection, processing and dissemination of statistics pertaining to tropical timber and other forestry parameters in India.(AFRI-86/Silvi/ITTO/2007-2009)

Findings: Data regarding forestry statistics collected from Rajasthan, Gujarat and Dadra & Nagar Haveli were compiled in various formats and sent to the ADG (Stat.), ICFRE. The revised

formats developed in consultation with the ITTO consultant were field tested and comments given by the Forests Departments were forwarded to the ADG (Stat.), ICFRE. Draft manual was finalized and report prepared.

Project 3: Assessment of soil carbon stock and dynamics in forest soils of India. (All India coordinated project, funded by MoEF, GoI). (AFRI- 91 /FED/NATCOM-II,MoEF /2009)

Findings: From July 2008 to January 2009, a total of 111 soil samples (98 from forest areas and 13 from agriculture land) in 0-30 cm soil layer were collected from 26 forest sub group types identified covering 6 districts of Gujarat and 16 districts of Rajasthan.

Soil organic carbon (SOC) was lowest (P<0.05) in Desert dune forests (0.04%) and highest in Northern dry mixed deciduous forest (1.16%). But soil carbon density was highest (P<0.05) in Dry tropical riverain forest (38.92Mg ha^{-1}) and lowest in Tropical Euphorbia scrub (1.46 Mg ha^{-1}). Thus, carbon density depended upon soil conditions as well as gravel content and rock outcrop in particular type of forests. SOC and carbon density were in reverse order in *A. leucoploea* based and Salvadora *oleoides* based *Cassia auriculata* scrub. Boswellia forests (5/E2) occupied highest altitude, whereas Rann Saline thorn scrub (6/E3) occupied lowest altitude. Carbon density was relatively greater in Rajasthan than in Gujarat forests. Lesser carbon density in most of the forest types than in the agriculture land indicates varying degree of degradation resulting in less carbon storage. However, Dry tropical riverain forest, Dry Teak Forest, Northern dry mixed deciduous forest and Desert Thorn forests showed highest carbon density than in agriculture land reflecting better soil health in these forest types by maintaining greater soil carbon stock. Wide variability in carbon density between forests and agriculture land indicated scope of carbon stock improvement in forests.